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FROM - RIO DE JANEIRO

SUBJECT - **NONCAPITAL PROJECT PAPER (NPP)**
Agricultural Education - Superior School of Agriculture
REFERENCE - **"Luiz de Queiroz" (ESAIQ)**

5120094 - (5)
DATE SENT 1/20/70

COUNTRY: BRAZIL

PROJECT NO: 512-11-110-094.4

SUBMISSION DATE: December, 1969

ORIGINAL: X

PROJECT TITLE: **Agricultural Education - Superior School of Agriculture "Luiz de Queiroz" (ESAIQ)**

U.S. OBLIGATION SPAN: FY 1963 through FY 1971

PHYSICAL IMPLEMENTATION SPAN: FY 1964 through FY 1972

GROSS LIFE OF PROJECT FINANCIAL REQUIREMENTS:

U.S. Dollars	\$3,245,000
U.S. owned Local Currency	60,000
Cooperating Country Cash Contribution (IF)	293,000
(CENTAP)	157,000
TOTAL	\$3,755,000

Enclosure: Annex A.

PAGE OF 9 PAGES

DRAFTED BY KKing/mc	OFFICE ARDO	PHONE NO. 210	DATE 12/31/69	APPROVED BY ADR: Harrison
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SUMMARY

The shortage of adequately trained personnel at the university level is a major factor limiting development of Brazil's agricultural sector.

The present requirement for trained agriculturists to meet the growing demands for teachers, research scientists, extension workers, economists and other technically trained personnel is far greater than the present output. The needed well-trained manpower can be supplied only with increased effort in the area of agricultural education.

The objective of this project is to accelerate the development of the total agricultural resources of the State of São Paulo by: (a) increasing the capacity of the College of Agriculture "Luiz do Queiroz" (ESALQ) of the University of São Paulo to play a constantly increasing and influential role in meeting the rapidly growing needs of the state and nation for highly trained agricultural technicians, and (b) assisting the State Secretariat of Agriculture to plan and coordinate activities of state, federal and private sector institutions dedicated to achieving the solution of agricultural problems.

To achieve the above objective the USAID is providing training and advisory services through a contract with Ohio State University (OSU). Under this contract Ohio State University provides full time professors plus short term consultants where needed and requested. Additionally, through the OSU contract, the USAID provides participant training in the United States for jointly selected Brazilian professors connected with the project and limited amounts of demonstration material not readily available in Brazil.

This project is of the same pattern as three other USAID financed university to university institution building projects designed to assist selected Brazilian schools of agriculture modernize their approach to agricultural education. It differs from the other three in that it operates in the richest, most advanced state in Brazil.

The project has sought to strengthen the undergraduate level at ESALQ and to build a postgraduate program in agriculture and home economics, employing the land grant college concept of combining teaching, applied research and service to rural communities as basic ingredients.

Improvement in agricultural education is necessary in Brazil, a country whose agricultural potential is great, but whose overall productivity in this sector has been inadequate by any reasonable standards. São Paulo, fortunately, has a better record in this respect than the rest of the country.

Project progress has been satisfactory or better. The relative financial stability of the State of São Paulo provides assurance of adequate support of the host institution. The reasonably high level of agricultural technology represents a positive factor for achieving project objectives.

v ESALQ is located at Piracicaba in the State of São Paulo.

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It is expected that this project will have attained its principal objectives by 1972. For the period 1970-1972, the action to be taken and the targets which have been established are described in Section IV of this PROP.

II. SETTING

Agricultural development is a prime requisite for economic growth and progress in Brazil. The country is largely dependent on agriculture for foreign exchange earnings, internal investment capital, and food and fiber. However, over the past 30 years, total agricultural production has barely kept up with population growth. Over the period the relatively small production increase noted has been largely the result of increased area cultivated rather than increased production per acre.

Despite the high priority assigned to agriculture by the GOB in recent years, serious educational deficiencies have remained as critical limiting factors for the entire agricultural scene. Some of these limiting factors are:

- a) Lack of knowledge and inadequate dissemination of existing knowledge on how to improve production.
- b) Lack of trained personnel to solve problems affecting production.
- c) Lack of educational resources to train the specialists needed to assume positions of leadership in country programs to increase agricultural production.

The National Educational Scene ★ ★

The situation in higher education is unsatisfactory. The number of Brazilians receiving higher education is inadequate in view of manpower needs of the developing society and nation.

Furthermore, the institutions of higher learning that exist, with few exceptions, are not meeting the needs of modernization. The curriculum is too rigid and traditional. Laboratories lack equipment and trained personnel. Libraries are small and often poorly organized. There are not enough places for qualified students who want to enter the institutions. A majority of teachers are part-time, spending relatively few hours at the university. Textbooks and other teaching materials are scarce.

★ Numerous reports are available in AID/W and USAID/Brazil on the Brazilian agricultural sector and the reader is referred to them for background information. The importance of agriculture to the Brazilian economy is well documented. It is easily the most important economic activity in Brazil, employing more than one half the total labor force. The agricultural sector analysis, now being completed by USAID/Brazil, will provide a detailed analysis of this sector including a discussion of the many problems and adverse conditions which the sector faces.

★ ★ The reader is referred to the Education Sector Analysis in the USAID/Brazil's FY 71 Program Field Submission for further background information.

The system fails to produce the numbers and types of skilled manpower to meet Brazilian development needs. The key problems at the higher education level are: a) admission requirements are too demanding; b) the curriculum is too rigid; c) student distribution among specialized courses is not well oriented to Brazil's manpower needs; and d) there is an extremely low number of graduates.

University enrollments for 1963 and 1964 (years for which complete data are available) indicate that the growth rate exceeded 14% each year. However, the percentage of enrollment favored areas other than agriculture. For example, the greatest percentage of enrollment (27%) was in the Faculty of Philosophy; law enrolled 22%, followed by engineering (15%), economics (10%) and medicine (10%).

In 1964, the total output of agriculture and veterinary medicine graduates was 726, only a small proportion of the number needed to improve the functioning of Brazil's agricultural economy.

III. STRATEGY

The strategy followed in this project is for a group of OSU professors to work closely, as individuals, with Brazilian counterpart professors to:

- 1) Upgrade the quality and expand the capacity of the Brazilian agricultural educational institution (ESALQ) to provide training in the agricultural sciences in order to meet the growing demand for research scientists, extension specialists, teachers and others assuming leadership roles in rural development.
- 2) Develop graduate curriculum, laboratory techniques, research methods and improved teaching in agricultural economics, plant, animal and soil sciences and rural sociology.
- 3) Send ESALQ staff abroad for academic training to M.S. and Ph.D. levels, and for orientation and special study tours in order to upgrade the teaching-research staff.

This program of participant training for the ESALQ staff has been an important element of project strategy in the process of institution building. Younger members of the staff are selected to go to U.S. universities (in most cases the Ohio State University) for academic training. A few of the more mature staff members, chair professors and administrators, have gone to the U.S. on special short-term training programs.

The participants upon returning to ESALQ are able to accomplish more in the breaking of old traditions and putting new ideas into practice than U.S. professors stationed at ESALQ are able to do. Furthermore, upon their return to Brazil, these Brazilian staff members are especially interested in working closely with the U.S. professors in order to bring about improvements in research programs, methods of instruction and administrative procedures.

This project is related to several other USAID activities. It is of the same pattern as three other USAID university-to-university institution building projects all of which are directed at strengthening the Brazilian agriculture educational system.

It is also related to the USAID agricultural research project. Through a contract with the IRI Research Institute, USAID is providing assistance to the research department of the Ministry of Agriculture. The department has an office which coordinates research undertaken by various institutions outside the Ministry of Agriculture, including rural universities. Beyond the coordinating effort, there is also an exchange of technical personnel as needed in conducting field days, special seminars, or in the evaluation and selection of candidates for special training.

ESALQ also receives assistance from organizations other than USAID. The following are examples:

In November 1968, the National Bank for Economic Development (BNDE) made a grant of NCr\$1,018,271 (approximately \$275,000) to the University of São Paulo, through the Fund for Technical and Scientific Development (FUNTEC) for the ~~post graduate~~ program in the agricultural sciences at ESALQ. BNDE, through FUNTEC, also ~~was~~ provided a loan of NCr\$622,300 (approximately \$150,000) to the São Paulo Secretariat of Agriculture to cover research costs in the fields of food technology with emphasis on banana production and technology.

ESALQ has enjoyed good financial support from various sources for student scholarships. For example, in 1967, 116 scholarships for undergraduates and 73 for graduate students were provided from eight different sources - the Brazilian Coffee Institute, Inter-American Institute for Agricultural Sciences, International Agency for Atomic Energy, UNICEF, and others. It has also enjoyed good support for the graduate program and through ten separate agreements with other Brazilian organizations funds in the amount of NCr\$652,987 were applied in the support of research and teaching.

With the encouragement of OSU personnel ESALQ entered into a cooperative agreement in 1965 with the Department of Animal Production (DPA) of the State Secretariat of Agriculture. Under this ~~agreement~~ agreement, qualified staff members of DPA are invited as visiting professors to participate in graduate level courses in animal nutrition or forage production. The agreement also provides the opportunity for graduate students in nutrition and forages to conduct thesis research at the Animal Nutrition Research Center near Piracicaba or at some other research station administered by DPA and having adequate facilities.

Implementation of the graduate program at ESALQ has as a necessary prerequisite the development of an adequate research program. ESALQ had enjoyed a certain degree of prestige for research accomplishment before this project was begun. From 1957 to 1963 research at ESALQ was greatly stimulated by a grant from the Rockefeller Foundation. During this period grant funds were available in five general areas: animal sciences, chemistry and soils, physics and mathematics, and agricultural engineering. During the six-year period of this grant, a total of 194 papers were published and 26 theses approved at ESALQ, an excellent indication of the effective use of the ~~Bank~~ Rockefeller funds.

PLANNED TARGETS AND COURSE OF ACTION

The following targets and course of action have been established for 1972, the planned phase-out date for USAID assistance to the project.

(1) Upgrade the level of professional training and skills of the staff at the University through formal academic training programs for staff members and through special short term training programs.

A total of 27 faculty members have gone to the U.S. and seven have returned with advanced degrees. Approximately ten ESALQ staff members will be prepared and sent to the U.S. for advanced academic training each year of the project. In 1970 14 participants will return from the U.S., seven of whom will have M.S. degrees and seven Ph.D. degrees. This compares with only five who returned in 1969 with M.S. degrees. Because of the salary scale and other favorable conditions at ESALQ, it is anticipated that over 90% of the people trained will remain on the staff at ESALQ for several years after returning with advanced degrees.

While emphasis is being placed on academic training programs, short-term training programs will also be utilized when the need and opportunity arises. These will be provided largely for staff with administrative responsibilities.

Faculty training and professional upgrading will continue on the campus of ESALQ itself. It is foreseen that approximately 50 of the professional staff will obtain advanced degrees at ESALQ during 1970.

(2) Continue the reformulation of the undergraduate curriculum, raise teaching levels, consolidate the home economics course and introduce new courses. ESALQ's undergraduate program will continue to be improved and enrollment increased to approximately 1,200 in 1970 with corresponding increases each year after that. The target for enrollment in 1972 is approximately 1,600 students. Continuing emphasis will be placed on subjects which will give a basic foundation to the students in order to develop their capacity in solving national and state agricultural problems.

In 1968, restructuring of the University of São Paulo began and will be completed in 1970. The main aspects of this reorganization are as follows:

- a. To create effective integration with regard to teaching, research, and extension through the transformation of the traditional schools into institutes covering areas of knowledge which will more nearly meet actual agricultural needs of the state.
- b. To introduce certain new subjects under the new flexible curricula.
- c. To introduce departmentalization in substitution for the traditional chair system.

The effects of this reorganization on ESALQ will be to immediately establish the following institutes at ESALQ:

- a. The Institute of Basic Sciences (physics and meteorology, mathematics and statistics, chemistry, zoology and entomology and genetics);

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- b. The Institute of Agricultural Sciences (plant science, animal science, rural technology, rural engineering, plant pathology and botany, and soils science).
- c. The Institute of Applied Social Sciences (economics, sociology and rural extension, and home economics).

It is anticipated that the present 23 chairs at ESALQ will be combined according to subject matter interests into about 16 departments. Faculty committees are now at work in drawing up procedures and it is anticipated that an orderly transition will take place in early 1970.

(3) The postgraduate program will be expanded to include rural social science, entomology, experimentation and statistics, plant pathology, plant science, genetics and plant breeding, animal nutrition and pastures, and plant nutrition and soils, all of which have been approved by CNPq at the M.S. degree level. Post graduate programs at the Ph.D. level will be initiated in soils and plant nutrition, genetics and plant breeding and plant pathology during 1970.

Graduate enrollment at ESALQ will also be increased. In 1970 enrollment will reach 180, an increase from 150 in 1969. The enrollment is expected to reach approximately 240 in 1972.

By 1972 it is expected to have in operation graduate programs to the M.S. degree level in each of the 16 new departments and with the quality of the M.S. degree recognized by U.S. universities. Each department will be able to accept 15 to 20 graduate students each year.

(4) Professional experience of the ESALQ staff will continue to be further enhanced by close working relationships with Ohio State University contract professors. The OSU professors will be assisting in teaching and advising on research and extension activities in the following departments, animal science, entomology, food technology, rural social science and home economics. Assistance in curriculum improvement is being provided by OSU in both graduate and undergraduate courses. Assistance with the development of graduate level seminars in all disciplines is also being provided. Finally, OSU professors are providing help in the continuing development of the ESALQ Agricultural Information Center.

OSU will continue to provide assistance until 1972 to assist in course planning and organization, and presentation where needed. OSU staff is involved in teaching several of the courses currently offered in the graduate school but there is need for additional courses in each department. These courses can be temporarily taught by either OSU professors or Brazilian professors contracted to teach a specific course, but eventually these courses must be the responsibility of the ESALQ staff.

In addition, the OSU staff provides leadership and suggestions for improving the overall operation of the graduate school.

(5) Increase integration of the work of ESALQ with that of the State Secretariat of Agriculture in research, extension and teaching, especially with the regional extension office which will be located on the ESALQ campus. Short courses will be conducted at ESALQ for personnel of state research and extension organizations, farmers and agro-business leaders. Approximately 12 will be conducted each year of the project.

(6) Continue expansion of the ESALQ library as an integral element in modernization of the teaching and research program to the point where it is entirely adequate for instructional programs at ~~undergraduate~~ and ~~postgraduate~~ levels. The present number of volumes (22,590) will be increased by 2,500 in 1970 and further increases will be made in subsequent years.

The development of the library was given early attention in the history of the project in an effort to bring it to a graduate school level as soon as possible. ESALQ finished a new building to house the library in 1966 and is also providing it with a substantial budget. OSU assists with the procurement of books and some ~~extra~~ back numbers of professional journals but ESALQ is expected to provide for journal subscription in their annual budget.

A qualified librarian is in charge of the library. She recently returned from a special short-term training program on modern library procedures in the U.S.. Rockefeller Foundation and BNDE have been supporting the purchase of books.

(7) Expand the work of the ESALQ Agricultural Information Center to develop ~~teaching~~ teaching aids to enable state farmers and agro-business to obtain the results of research ~~con~~ ducted at ESALQ.

The Information Center was given considerable assistance by OSU to get it underway. Most of the equipment was provided by OSU but ESALQ is now carrying the Center on the annual University budget. Of vital importance to the Center's development was the photographic equipment ~~was~~ provided by USAID and used for the preparation of films strips and slides as visual aids for instruction and extension activities.

(8) ESALQ will continue to seek outside sources of financial support for its research activities from such Brazilian organizations as CAPES, BNDE, IBC, and CNPq from international organizations such as FAO and OEA, and from the Ford Foundation and the Rockefeller Foundation.

(9) Agricultural research will be continued in all areas at ESALQ to solve rural and agricultural problems with emphasis on an interdisciplinary approach. Published research material by faculty members will increase.

(10) Further the operation of the teaching-research-extension trilogy within the ESALQ as a method of problem solving and agricultural development in the State of São Paulo and Brazil.

Table 1
Page 1 of 2 pages
COUNTRY: BRAZIL

NONCAPITAL PROJECT FUNDING (Obligations in \$000)

Annex A
PROP Date: Dec, 1969
ORIGINAL: X
Rev. N9:
Project N9: 512-11-110-094.4

Project Title: Agricultural Education - Superior School
of Agriculture "Luiz de Queiroz" (ESALQ)

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Fiscal Years	Ap	L/G	Total	Cont ^{1/}	<u>Personnel Serv.</u>			<u>Participants</u>		<u>Commodities</u>		<u>Other Costs</u>	
					<u>AID</u>	<u>PASA</u>	<u>Cont</u>	<u>U.S. Agen.</u>	<u>Cont</u>	<u>U.S. Agen.</u>	<u>Cont</u>	<u>U.S. Agen.</u>	<u>Cont</u>
Prior thru Actual FY 69	AG	G	2236	2189	35	-	1498	11	211	1	283	-	197
Operational FY 70	AG	G	570	529	41	-	227	-	234	-	25	-	43
Budget FY 71	AG	G	439	395	44	-	235	-	92	-	25	-	43
B + 1 FY 72													
B + 2 FY 73													
B + 3 FY 74													
All Subs Yrs.													
Total Life	AG	G	3245	3113	120	-	1960	11	537	1	333	-	283

^{1/} Memorandum (nonadd) column

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RIO DE JANEIRO

Fiscal Years	AID-controlled Local Currency		Other Cash Contribution	Other Honor Fund	Food For Freedom Commodities		
	U.S. owned	Country owned	Cooperating Country	(\neq Equiv.)	Metric Tons (000)	CCC Value & Freight (\$000)	World Market Price (\$000)
■ Prior thru Actual FY 69	60	84	128				
Operational FY 70		99	29				
Budget FY 71		110					
B + 1 FY 72							
B + 2 FY 73							
B + 3 FY 74							
All Subs Yrs.							
Total Line	60 ^{1/}	29 ^{2/}	157				

1/ HCr\$258.500 - PL480 Sec 104 (f)

2/ Trust Fund.

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Achieving the targets previously listed will assure the achievement of this last target. In addition, administrative visits of OSU directors and department heads plus short-term study tours of ESALQ administrators to the U.S. will aid greatly in the further development and understanding of this process.

ELBRICK